July 2011

Curriculum Vitae

Name: James W. Hodge, Ph.D., MBA

Education:

1988	B.S.	University of Tennessee, Martin, Tennessee *(Biology/Chemistry)*
1990	M.S.	University of Tennessee, Knoxville, Tennessee *(Microbiology)*
1993	Ph.D.	University of Tennessee, Knoxville, Tennessee *(Comparative and Experimental Medicine)*
2008	M.B.A.	George Washington University, Washington, DC *(Medicine/Healthcare)*

Brief Chronology of Employment:

1988-1990 Biological Database Systems Analyst, Oak Ridge National Laboratory, X-10, Toxicology Research Division (Department of the Navy), Oak Ridge, TN

1993-1996 IRTA Research Fellow, Experimental Oncology Section, Laboratory of Tumor Immunology and Biology, National Cancer Institute, National Institutes of Health, Bethesda, MD

1996-1998 Senior Staff Fellow, Experimental Oncology Section, Laboratory of Tumor Immunology and Biology, National Cancer Institute, National Institutes of Health, Bethesda, MD

1998-2003 Staff Scientist, Laboratory of Tumor Immunology and Biology, National Cancer Institute, National Institutes of Health, Bethesda, MD

2003-Present Senior Scientist, Head of the Recombinant Vaccine Group, Laboratory of Tumor Immunology and Biology, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD

Academic Appointments:

Senior Visiting Professor of Radiation Oncology, Department of Radiation Oncology and Surgery, Albert Einstein College of Medicine, New York, NY, 2008-Present (adjunct).

Professor, Department of Medical Genetics, University of Tennessee Medical Center, Knoxville, TN, 2000-2008 (adjunct).

Memberships/Current NIH Faculties:

American Association for Cancer Research

Vaccine Working Group, National Institutes of Health, 2000-Present.

Immunology Faculty, National Cancer Institute, National Institutes of Health, 2001-Present.

Information Technology Contact, Center for Cancer Research, National Cancer Institute, National Institutes of Health, 2009-Present.

Honors and Other Scientific Recognition:

Science Alliance Research Excellence Award, University of Tennessee, Department of Microbiology, 1992.

Science Alliance Research Excellence Award, University of Tennessee, Department of Medical Biology, 1993.

Federal Technology Transfer Award, Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010.

Sustained Superior Performance Award, National Cancer Institute, 2001, 2007, 2008, 2009, 2010.

National Institutes of Health Award of Merit 'For major contributions to the field of cancer immunotherapy', National Institutes of Health, 2003.

10-Year Service, United States Federal Government, Health and Human Services, National Institutes of Health, National Cancer Institute, 2006.

National Institutes of Health Award of Merit 'For accomplishments in therapeutic cancer vaccines, from vaccine design to clinical studies', National Institutes of Health, 2009.

Nominated for NCI Outstanding Mentor Award 'To acknowledge exemplary mentoring and guidance of trainees in cancer research', National Institutes of Health, 2010.

Technology Transfer:

Issued patents (National Only)

U.S. Patent #6045802. *Recombinant Vaccine Design.* "Enhanced immune response to an antigen by a composition of a recombinant virus expressing the antigen with a recombinant virus expressing an immunostimulatory molecule".
Issued 4/4/2000. International Issue 4/4/2000.

U.S. Patent #6548068. *Infectious Disease*. "Enhanced immune response to an antigen by a composition of a recombinant virus expressing the antigen with a recombinant virus expressing an immunostimulatory molecule". Issued 4/15/2003.

U.S. Patent #6893869. *Modified Whole Tumor Cell Vaccine*. "Enhanced immune response to an antigen by a composition of a recombinant virus expressing the antigen with a recombinant virus expressing an immunostimulatory molecule". Issued 5/17/2005.

U.S. Patent #6969609. "A recombinant vector expressing multiple costimulatory molecules and uses thereof". Status: Issued 11/29/2005.

U.S. Patent #7211432. *Modified Whole Tumor Cell Vaccine* "A recombinant vector expressing multiple costimulatory molecules and uses thereof". Status: Issued 5/01/2007.

U.S. Patent #7368116. "Method of enhancing a targeted immune response against tumors". Status: Issued 5/6/2008.

U.S. Patent #7662395. "Method of enhancing a targeted immune response against tumors". Status: Issued 2/16/2010.

U.S. Patent #7771715. *General Vaccine* "A recombinant vector expressing multiple costimulatory molecules and uses thereof". Status: Issued 8/10/2010.

Patent Applications (National Only)

U.S. Patent Application #20050063993. *Cancer Vaccine*. "Enhanced immune response to an antigen by a composition of a recombinant virus expressing the antigen with a recombinant virus expressing an immunostimulatory molecule". Status: Initial Filing 3/242005.

U.S. Patent Application #20040101522. "Transduced neoplastic cell preparations able to express T-cell costimulatory molecules B7.1, ICAM-1, and LFA-3 and induce immunostimulatory prophylactic and therapeutic anti-tumor effects in-vivo". Status: Initial Filing 5/272005.

Technology Transfer (continued):

U.S. Patent Application #20050186180. *General Vaccine*. "Enhanced immune response to an antigen by a composition of a recombinant virus expressing the antigen with a recombinant virus expressing an immunostimulatory molecule". Status: Initial Filing 8/252005.

U.S. Patent Application PCT/US2004/037810. "Custom Vectors for Treating and Preventing Pancreatic Cancer". Status: Initial Filing 9/05.

U.S. Patent Application PCT/US2004/037810. "System for treating and preventing pancreatic cancer". Status: Initial Filing 9/05.

U.S. Patent Application #20070048860. "Carcinoembryonic antigen (CEA) peptides". Status: Initial Filing 3/12007.

U.S. Patent Application #2010/031460. "Combination Immunotherapy Vaccine Compositions and Methods." Status: Initial Filing 4/16/10.

Editorial/Advisor Duties:

Ad-hoc reviewer for journals including Blood, Cancer Research, Clinical Cancer Research, Cancer Detection and Prevention, Journal of Clinical Investigation, Journal of Immunology, Current Opinions in Molecular Therapeutics, Emerging Therapeutic Targets, Expert Opinion on Biologic Therapy, Expert Review of Vaccines, Journal of the National Cancer Institute, Nature Medicine, Cancer Epidemiology.

Study Section Reviewer, Immunology: Prostate Cancer Vaccine Section, Department of Defense, 2000.

Grant Reviewer: Wellcome Trust. 2004-2005. The Wellcome Trust is the world's largest medical research charity funding research into human and animal health.

Editorial Member of Advisory Board of Editors for the International Society for Preventive Oncology (ISPO) journal; Cancer Detection and Prevention. 2005-2009.

Managing Editor of the journal Frontiers in Bioscience. 2005-Present.

Member of Advisory Committee for planning the International Society for Preventive Oncology (ISPO) annual meeting; Paris, France, 2006.

Editorial Board Member: Cancer Epidemiology, 2009-Present.

Member of Advisory Committee for planning the 5th Annual Biological Therapeutics Conference, San Francisco, CA. 2010.

Grand Rounds/Session Chairman/Keynote at National and International Meetings:

Grand Rounds: "Perspectives in Cancer Immunotherapy: Vaccine Challenges and Solutions," University of Tennessee Medical Research Hospital and Thompson Cancer Survival Center, Knoxville, TN, USA. 1998.

Session Chairman: "Advances in Immunotherapy," Annual Meeting of the American Association for Cancer Research, San Francisco, CA. 2002.

Symposium Chairman: "Cancer Immunotherapy and Prevention," International Society for Cancer Detection and Prevention, Pasteur Institute, Paris, France, 2002.

Symposium Chairman: "Vaccine Trials," International Society for Cancer Detection and Prevention, Nice, France, 2004.

Grand Rounds: "Combining Standard of Care Radiation Therapy with Active Vaccination Against Tumors," Radiation Oncology Grand Rounds, Albert Einstein College of Medicine and Montefiore Medical Center, New York, 2009.

Symposium Chairman: "Modern Vaccine Development," 5th Annual Biological Therapeutics Conference, San Francisco, CA. 2010.

Keynote: "Combining Approved Therapies with Active Vaccination Against Tumors," Moving Targets. 9th Annual Multidisciplinary Scientific Symposium, University of Southern California, Los Angeles, CA. 2010.

Special Session Chairman: "Immunotherapy, The Future Combination" European Multidisciplinary Cancer Congress: Integrating Basic & Translational Science, Surgery, Radiotherapy, Medical Oncology And Care. Stockholm, Sweden, 2011.

Invited Seminars and Lectures: ***National***

"CEA-State of the Art," XXIV International Society for Oncodevelopmental Biology and Medicine Congress, San Diego, CA, USA. 1996.

"Recombinant Vaccine Strategies for Cancer Immunotherapy," Multidisciplinary Approaches to Cancer Immunotherapy, Bethesda, MD, USA. 1997.

"Costimulation and Tumor Immunotherapy," Immunology Interest Group, NIH Seminar Series, Bethesda, MD, USA. 1998.

"Combination Vaccine and Radiation Therapy for Established Tumors," Immunology Faculty, Center for Cancer Research, NCI, NIH, DHHS, Bethesda, MD, 2003.

"Live Vaccines for the Therapy of Colorectal Carcinoma: Preclinical and Clinical Studies," Emerging Cancer Therapeutics, Cambridge, MA, 2003.

Invited Seminars and Lectures (continued):

"Opportunities and Challenges in Cancer Vaccine Development: Integration of Cancer Vaccines with Conventional Anti-cancer Therapies," Phacilitate Vaccine Forum, Boston, MA, 2003.

"Multimodal Strategies for Cancer Therapy," Medical College of Wisconsin, Milwaukee, WI, 2004.

"Combining Cancer Vaccine Strategies with Standard-of-Care Therapies," Immunology Faculty, Center for Cancer Research, NCI, NIH, DHHS, Bethesda, MD, 2006.

"Challenges in Cancer Vaccine Development: Prime/Boost Vaccines (Pre-clinical and Clinical Studies)," Walter Reed Army Institute of Research (WRAIR), 2007.

"Bench to Bedside: Vaccine Strategies and Combined Modalities for the Therapy of Cancer," Bringing Therapeutic Cancer Vaccines and Immunotherapies Through Development to Licensure. FDA/NCI Sponsored Workshop. Bethesda, MD, 2007.

"The Use of Cancer Vaccines in Combination Therapies," Applying Systems Biology Collaboration Conference; Beyond Genome 2008, San Francisco, CA, 2008.

"Towers of Babel: Translating Business and Science to Treat the First Patient," Sunrise Session, Applying Systems Biology Collaboration Conference; Beyond Genome 2008, San Francisco, CA, 2008.

"Engineering of Poxvirus Vectors and Vaccines," Department of Biology, Georgia State University, Atlanta, GA, 2008.

"Career Development for Science and Biotechnology," Georgia State University, Atlanta, GA, 2008.

"Cancer Vaccines: Moving Beyond Current Paradigms for Clinical Trial Design and Combination Therapies," 6th Annual Cancer Drugs Research and Development Conference, Philadelphia, PA, 2009.

"Lost in Translation; Removing Barriers to Moving Vaccine Strategies and Combination Therapy to the Clinic," Life Science Summit, Next Generation Therapeutic Modalities, Hauppauge, NY, 2009.

"Antigen Cascade in Combination Therapies: Cancer Vaccine Strategies with Standard-of-Care," 5th Modern Drug Discovery and Development Summit: Modern Vaccine Development, San Diego, CA, 2009.

Invited Seminars and Lectures (continued):

"A Brave New World: Vaccines for Therapy of Cancer," West Virginia State University Faculty Lecture Series, American Chemical Society Speaker Series and College of Natural Sciences and Mathematics Fall Convocation, Charleston, WV, 2010.

"Cancer Vaccines Work, What Next? Combination Vaccine Therapy as the Next Frontier," 5th Annual Biological Therapeutics Conference, San Francisco, CA, 2010.

"Recombinant Poxviral Vaccines for Cancer Therapy," University of Tennessee Student Members of American Chemical Society (SMACS) and Sigma Xi Lecture, Martin, TN, 2010.

Invited Seminars and Lectures: ***International***

"Active Cancer Immunotherapy-State of the Art," XXV International Society for Oncodevelopmental Biology and Medicine Congress, Montreux, Switzerland, 1997.

"Costimulatory Molecules in Vaccine Design," Vaccination Strategies Workshop, Ernst Schering Research Foundation, Berlin, Germany, 1999.

"Advances in Cancer Vaccines," International Society for Cancer Detection and Prevention, Pasteur Institute, Paris, France, 2002.

"The Use of Recombinant Vaccines for the Therapy of Colorectal Carcinoma," Recent Advances in Cancer Immunotherapy, The Catholic University of Korea, Seoul, Korea, 2003.

"Recombinant Cancer Vaccines: Design and Development," International Society for Cancer Detection and Prevention, Nice, France, 2004.

"Vaccine Therapy for Cancer, Multimodal Approaches," Royal Society of Medicine, London, UK, 2004.

"Vaccine Strategies and Combined Modalities for the Therapy of Cancer," Development of New Therapies for Cancer, World BioPharm Forum, Cambridge, UK, 2007.

"Cancer Vaccines: Unlocking the Combination of Standard-of-Care and Experimental Therapies," Viral Vector Vaccines, Wellcome Trust, Hinxton, Cambridge, UK, 2008.

"T-cells as Magic Bullets: Recombinant Vaccine Strategies for Cancer Immunotherapy," Ehrlich 2nd World Conference on Magic Bullets, Nuremberg, Germany, 2008.

Invited Seminars and Lectures (continued):

"Vaccination with a Recombinant *Saccharomyces cerevisiae* Vaccine Expressing a Tumor Antigen Breaks Immune Tolerance and Elicits Therapeutic Antitumor Responses", Black Sheep Lecture, 27th ISSY; International Specialized Symposium on Yeasts, Pasteur Institute, Paris, France 2009.

"The Tipping Point for Combination Therapy: Cancer Vaccines with Radiation", 14th International Congress of Radiation Research, Warsaw, Poland, 2011.

Teaching:

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. Quarterly lecture "Pox: Ghost of the Past, Present, and Future" 2003-Present.

Foundation for Advanced Education in the Sciences, NIH, Bethesda, MD. Quarterly lecture "Vaccines: Development and Evaluation of Efficacy. Poxvirus Vectors and Vaccines" Bio-Track 31. 2004-Present.

Financial Market Analysis. Facilitator, George Washington School of Business. 2008-Present.

Personal Financial Management. Facilitator, George Washington School of Business. 2008-Present.

Mentoring:

Summary:

Dr. Hodge has served as a mentor for 13 postdoctoral fellows, 9 Howard Hughes Medical Institute Fellows, 1 medical fellow, 3 Postbaccalaureate Fellows and 18 summer interns. In addition, he has served on 2 doctoral committees. Dr. Hodge's fellows have gone on to tenure track professor positions or leadership positions in the biotechnology and/or medical industry. Dr. Hodge has been nominated for NCI Mentor of the Year.

Current Fellows under Dr. Hodge's direct supervision:

2010-current Dr. Anna Kwilas, Ph.D., Postdoctoral Fellow (CRTA)
2009-current Dr. Andressa Ardiani, Ph.D., Visiting Postdoctoral Fellow
2009-current Dr. Benedetto Farsaci, M.D., Ph.D., Visiting Postdoctoral Fellow
2008-current Dr. Sofia Gameiro, Ph.D., Visiting Postdoctoral Fellow

Mentoring (continued):

Past Postdoctoral Fellows under Dr. Hodge's direct supervision:

1996-1999 Dr. Matthias Lorenz, Ph.D.
1999-2005 Dr. Douglas Grosenbach, Ph.D.
1999-2002 Dr. Mijntje Aarts, Ph.D.
2001-2007 Dr. Mala Chakraborty, Ph.D.
2002-2005 Dr. Chie Kudo-Saito, Ph.D.
2002-2006 Dr. Elizabeth Wansley, Ph.D.
2002-2006 Dr. Charlie Garnett, Ph.D.
2007-2010 Dr. Jack Higgins, Ph.D.
2007-2010 Dr. Amanda Boehm, Ph.D.

Past Howard Hughes Medical Institute Fellows under Dr. Hodge's direct supervision:

1995-1996: Kerry Bernal (Uzendoski) M.D.
1996-1997: Robert Kalus, M.D.
1998-1999: Ariel Rad, M.D., Ph.D.
1999-2000: Jacqueline Barrientos, M.D.
2000-2001: Pragyna Shankar, M.D.
2004-2005: Alexander Gelbard, M.D.
2005-2006: Hadley Sharp, M.D.
2007-2008: Jorge Caballero, M.D.
2009-2010: Julia Rotow, M.D.

Past Medical Students and Postbaccalaureate Fellows under Dr. Hodge's direct supervision:

1997-1998 Eric Bernon, M.D.
1999-2000 Mary Ann Cachola
2006-2008 Michael Bernstein, M.D.
2010-2011 Michael Coplin

Doctoral Committee Memberships:

Department of Medical Biology, University of Tennessee, Knoxville, TN
Department of Radiation Oncology and Surgery, Albert Einstein College of Medicine, NY

Clinical Trial Responsibilities (non-clinical):

Associate Investigator: NCI Protocol 5911, "A phase I/II Study of Sequential Vaccinations with Fowl pox-PSA (3A)/TRICOM (B7-1/ICAM-1/LFA-3) Alone, or in Combination with Vaccinia-PSA (3A)/TRICOM, and the Role of GM-CSF, in Patients with Prostate Cancer."

Associate Investigator: NCI Protocol 05-0017 5911, "A Phase I Feasibility Study of Novel Intraprostatic PSA Based Vaccine in Patients with Advanced Prostate Cancer."

Public Service:

Quarterly Speaker, Regional Institute for Children and Adolescents (RICA), Montgomery County Public Schools, Rockville, MD, 2001-2003.

Judge for Elementary Science Fair, Flower Valley Elementary School, Montgomery County Public Schools, Rockville, MD, 2005-2006.

Mentor for 'in-lab' students, Regional Institute for Children and Adolescents (RICA), Montgomery County Public Schools, Rockville, MD, 2003-2009.

Career Development Seminar, Watkins Mill Elementary School, Montgomery County Public Schools, Rockville, MD, 2009-Present.

Media Interviews/Press Publications:

"Stalking a Killer." In: Tennessee Alumnus Magazine, Volume 85:1, Winter 2005.

"Cancer Vaccine Research Offers Hope." University of Tennessee Campus Scene, Volume 40: Winter/Spring 2005.

"Triple Therapy to Target Tumours." Instant Insight, Highlights in Chemical Biology, 2009

"Progress, Promise and Hurdles in Developing Cancer Immunotherapy/Therapeutic Cancer Vaccines," Scrip 100, 2009.

"Therapeutic Synergies in the Fight Against Cancer," CCR Connections, July 2010.

"Vaccines for Therapy of Cancer," WLJT Public Television for West Tennessee, Channel 11, PBS affiliate, October 2010.

Publications:

Peer Reviewed Articles*:*

- *Total: n=59*
- *Hodge primary/senior: n=41*
- *Hodge primary/senior without Lab Chief as primary/senior: n=32*

* *Denotes Hodge independent contributions on articles without Lab Chief as primary/senior*

1) Wust, C.J., **Hodge, J.W**., Ichiki, A.T., and Lozzio, C.B. 1991. Cell death in the human leukemia cell line, K-562, induced by antiserum and monoclonal antibodies. Leukemia Research. 15:497-507.

2) ***Hodge, J.W**., Abrams, S., Schlom, J., and Kantor, J.A. 1994. Induction of antitumor immunity by recombinant vaccinia viruses expressing B7-1 or B7-2 costimulatory molecules. Cancer Research. 54:5552-5555.
Dr. Hodge personally engineered the first pox viral vector (vaccinia) encoding a T-cell costimulatory molecule (B7-1) as well as compared 2 costimulatory molecules for induction of antitumor immunity. These studies led to clinical trials in melanoma which showed patient benefit. The poxviral B7-1, along with ICAM-1 (reference 7) and LFA-3 (reference 11) formed the foundation for the TRICOM vectors (PANVAC, PROSTVAC) that are used in the majority of the clinical trials conducted by the Laboratory of Tumor Immunology and Biology.

3) ***Hodge, J.W**., McLaughlin, J.P., Abrams, S., Shupert, W.L., Schlom, J., and Kantor, J.A. 1995. Admixture of a recombinant vaccinia virus containing the gene for the costimulatory molecule B7 and a recombinant vaccinia virus containing a tumor-associated antigen gene results in enhanced specific T-cell responses and antitumor immunity. Cancer Research. 55:3598-3603.
Dr. Hodge personally designed two poxviral vectors; one with a pancarcinoma tumor antigen and one with a T-cell costimulatory molecule, and demonstrated that this combination induced superior tumor specific T-cell responses and antitumor activity. This concept led to several clinical studies in prostate and breast cancer with evidence of patient benefit.

4) ***Hodge, J.W**., Schlom, J., Donohue, S.J., Tomaszewski, J.E., Wheeler, C.W., Levine, B.S., Gritz, L., Panicali, D., and Kantor, J.A. 1995. A recombinant vaccinia virus expressing prostate-specific antigen (PSA): Safety and immunogenicity in a nonhuman primate. International Journal of Cancer. 63:231-237.
Dr. Hodge engineered a poxviral vector encoding human PSA and conducted non-human primate studies to gain approval for this reagent to be used in clinical studies. This vector formed the foundation for PSA/TRICOM (PROSTVAC), the vaccine used in the majority of the clinical trials conducted by the laboratory.

Peer Reviewed Articles (continued):

5) Akagi, J., **Hodge, J.W**., Gritz, L., Panicali, D., Kufe, D., Schlom, J., and Kantor, J.A. 1997. Therapeutic anti-tumor response after immunization with an admixture of two recombinant vaccinia viruses expressing a modified MUC1 gene and the murine T-cell costimulatory molecule B7. Journal of Immunotherapy. 20:38-47.

6) Abrams, S.I., **Hodge, J.W**., McLaughlin, J.P., Kantor, J.A., and Schlom, J. 1997. The role of $CD8^+$ and $CD4^+$ T-lymphocytes in an adoptive immunotherapy model of murine carcinoma. Journal of Immunotherapy. 20:48-59.

7) *Uzendoski, K., Kantor, J.A., Abrams, S., Schlom, J., and **Hodge, J.W.** 1997. Construction and characterization of a recombinant vaccinia virus expressing murine intercellular adhesion molecule-1: induction and potentiation of antitumor responses. Human Gene Therapy. 8:851-860.
Dr. Hodge mentored a Howard Hughes Medical Fellow in the construction and development of a poxviral vector encoding a second T-cell costimulatory molecule, ICAM-1, which potentiated T-cell responses and antitumor activity. This concept, as the prototype for multiple costimulatory molecule vectors, formed the foundation for several clinical trials conducted by the laboratory.

8) ***Hodge, J.W**., McLaughlin, J.P., Schlom, J., and Kantor, J.A. 1997. Diversified prime and boost protocols using recombinant vaccinia virus and recombinant nonreplicating avian pox virus to enhance T-cell immunity and antitumor responses. Vaccine. 15:759-768.
Dr. Hodge identified, engineered and developed a poxviral vaccine that could be administered multiple times following a single vaccinia virus prime, which was crucial to inducing a potent immune response against self-tumor antigens. This diversified prime/boost strategy became the cornerstone for all vaccination protocols used in clinical trials using poxviral vectors.

9) Ichiki, A.T., Langenberg, M., Baker, E.J., **Hodge, J.W.**, Bamberger, E.G., Gerard, D., and Lozzio, C.B. 1998. Differential Regulation of IL-1a and IL-1b in K-562 cells. Journal of Interferon and Cytokine Research. 18:1045-1050.

Peer Reviewed Articles (continued):

10) *Kalus, R.M., Kantor, J.A., Schlom, J., and **Hodge, J.W.** 1999. The use of recombinant dual gene vaccinia constructs versus combination vaccines to enhance antigen-specific-T-cell immunity via T-cell costimulation. Vaccine. 17:893-903.
In order to guarantee the coexpression of tumor antigen and costimulatory molecule on the same cell, Dr. Hodge mentored a Howard Hughes Medical Fellow in the construction and development of a poxviral vector encoding two genes; a tumor antigen and a T-cell costimulatory molecule. This vector was shown to be superior to the admixing of two single vectors and was the conceptual foundation for poxviral vectors encoding multiple antigens and costimulatory molecules, the forerunner of PROSTVAC and PANVAC vaccines.

11) *Lorenz, M.G.O., Kantor, J.A., Schlom, J., and **Hodge, J.W.** 1999. Induction of antitumor immunity elicited by tumor cells expressing a murine LFA-3 analog via a recombinant vaccinia virus. Human Gene Therapy. 10:623-631.
Dr. Hodge mentored a visiting fellow in the construction and development of a poxviral vector encoding a third T-cell costimulatory molecule, LFA-3, which further potentiated T-cell responses and antitumor activity. This concept, as the foundation for multiple costimulatory molecule vectors, formed the basis for several clinical trials conducted by the laboratory.

12) *Lorenz, M.G.O., Kantor, J.A., Schlom, J., and **Hodge, J.W.** 1999. Anti-tumor immunity elicited by a recombinant vaccinia virus expressing CD70 (CD27L). Human Gene Therapy. 10:1095-1103.
Dr. Hodge mentored a visiting fellow in the construction and development of a poxviral vector encoding an additional costimulatory molecule, CD70. This vector was shown to induce antigen-specific T-cell responses and antitumor activity.

13) **Hodge, J.W.**, and Schlom, J. 1999. Comparative studies of a retrovirus versus a poxvirus vector in whole tumor-cell vaccines. Cancer Research. 59:5106-5111.

14) **Hodge, J.W.,** Sabzevari, H., Lorenz, M., Yafal, A.G., Gritz, L., and Schlom, J. 1999. A triad of costimulatory molecules synergize to amplify T-cell activation. Cancer Research. 59:5800-5807.

15) Freund Y.R., Mirsalis J.C., Fairchild D.G., **Hodge, J.W.**, Schlom, J., et al. 2000. Immunization with a recombinant vaccinia vaccine containing B7-1 causes no significant immunotoxicity and enhances T cell-mediated cytotoxicity. International Journal of Cancer. 85:508-517.

Peer Reviewed Articles (continued):

16) **Hodge, J.W.,** Rad, A.N., Grosenbach, D.W., Sabzevari, H., Yafal, A.G., Gritz, L., and Schlom, J. 2000. Enhanced activation of T cells by dendritic cells engineered to hyperexpress a triad of costimulatory molecules. Journal of the National Cancer Institute. 92:1228-1239.

17) Baker, E.J., Ichiki, A.T., **Hodge, J.W.,** Sugantharaj, D., Bamberger, E.G., and Lozzio, C.B. 2000. PMA-treated K-562 leukemia cells mediate a TH2-specific expansion of $CD4^+$ T cells in vitro. Leukemia Research. 24:1049-1057.

18) Sabzevari, H., Kantor, J., Jaigirdar, A., Tagaya, Y., Naramura, M., **Hodge, J.W.**, Bernon, J., and Schlom, J. 2001. Acquisition of B7-1 by T cells. Journal of Immunology. 166:2505-2513.

19) *Rad, A.N., Schlom, J., and **Hodge, J.W.** 2001. Vector-driven hyperexpression of a triad of costimulatory molecules confers enhanced T-cell stimulatory capacity to DC precursors. Critical Reviews in Oncology and Hematology. 39:43-57.
Dr. Hodge mentored a Howard Hughes Medical Fellow and demonstrated that dendritic cells could be infected with TRICOM vectors to over express B7-1, ICAM-1, and LFA-3, resulting in a superior DC vaccine platform. These data were the basis for an ongoing Phase II clinical trial in metastectomy patients at Duke Cancer Center.

20) **Hodge, J.W.,** Grosenbach, D.W., Rad, A.N., Giuliano, A., Sabsevari, H., and Schlom, J. 2001. Enhancing the potency of antigen presenting cells by vector-driven hyperexpression of a triad of costimulatory molecules. Vaccine. 19:3552-3567.

21) *Grosenbach, D.W., Barrientos, J.C., Schlom, J., and **Hodge, J.W.** 2001. Synergy of vaccine strategies to amplify antigen-specific immune responses and anti-tumor effects. Cancer Research. 61:4497-4505.
Dr. Hodge mentored a postdoctoral fellow and performed a comparative analysis on several vaccine modalities, including one costimulatory molecule vs. multiple molecules, diversified prime and boost, and the role of GM-CSF. These studies formed the basis for ongoing Phase I and II trials.

22) *Shankar, P., Schlom, J., and **Hodge, J.W.** 2002 Enhanced activation of rhesus T cells by vectors encoding a triad of costimulatory molecules (B7-1, ICAM-1, LFA-3). Vaccine. 20:744-755.
Dr. Hodge mentored a Howard Hughes Medical Fellow in the examination of vectors containing multiple costimulatory molecules (TRICOM) in rhesus macaques for potential inclusion into a malaria vaccination program. This study was a collaboration with Walter Reed Army Institute of Research and was the first to examine human costimulatory molecules in the induction of rhesus immune responses.

Peer Reviewed Articles (continued):

23) **Hodge, J.W.,** Grosenbach, D.W., and Schlom, J. 2002. Vector-based delivery of tumor-associated antigens and T-cell costimulatory molecules in the induction of immune responses and anti-tumor immunity. Cancer Detection and Prevention. 26:275-291.

24) Schmitz, J., Schlom, J., Reali, E., **Hodge, J.W.**, Patel, A., Davis, G., and Greiner, J.W. 2002. Identification of an interferon gamma-inducible carcinoembryonic antigen (CEA) $CD8^+$ T cell epitope which mediates tumor killing in CEA transgenic mice. Cancer Research. 62:5058-5064.

25) *Aarts, W.M., Schlom, J., and **Hodge, J.W.** 2002. Vector-based vaccine/cytokine combination therapy to enhance induction of immune responses to a self-antigen and antitumor activity. Cancer Research. 62: 5770-5777.
Dr. Hodge mentored a visiting fellow and performed a comparative analysis on several vaccine modalities, including costimulation, GM-CSF, and IL-2 cytokine augmentation to define the optimal regimen for antitumor activity. These studies formed the basis for ongoing Phase I and II trials, as well as a planned Phase III trial in prostate cancer.

26) **Hodge, J.W**., Grosenbach, D.W., Aarts, W.M., Poole, D.J., and Schlom, J. 2003. Vaccine therapy of established tumors in the absence of autoimmunity. Clinical Cancer Research. 9:1837-1849.

27) Oh, S., **Hodge, J.W.,** Ahlers, J.D., Burke, D.A., Schlom, J., and Berzofsky, J.A. 2003. Signaling through a triad of costimulatory molecules facilitates the induction of high avidity antigen-specific $CD8^+$ CTL. Journal of Immunology. 170:2523-2530.

28) *Chakraborty, M., Abrams, S.I., Camphausen, K., Liu, K., Scott, T., Coleman, C.N., and **Hodge, J.W.** 2003. Irradiation of tumor cells up-regulates Fas and enhances CTL lytic activity and CTL adoptive immunotherapy. Journal of Immunology. 170: 6338-6347.
Dr. Hodge mentored a postdoctoral fellow (CRTA) and examined the role of radiation on tumor phenotype. This was the first study to describe radiation induced phenotypic changes that resulted in tumor cells becoming more sensitive to T-cell lysis via upregulation of the death receptor Fas. This study (along with references 32 and 34) showed that vaccination could be combined with standard-of-care radiation treatment for increased antitumor activity. This study formed the foundation for a Phase II clinical trial.

Peer Reviewed Articles (continued):

29) *Grosenbach, D.W., Schlom, J., Gritz, L., Gomez Yafal, A., and **Hodge, J.W.** 2003. A recombinant vector expressing transgenes for four T-cell costimulatory molecules (OX40L, B7-1, ICAM-1, LFA-3) induces sustained CD4+ and CD8+ T-cell activation, protection from apoptosis, and enhanced cytokine production. Cellular Immunology. 222:45-57.

Dr. Hodge mentored a postdoctoral fellow (CRTA) and examined the role of costimulatory molecules in addition to those encoded by the TRICOM vectors (B7-1, ICAM-1, and LFA-3). This study demonstrated that certain costimulatory molecules with unique additional functions could be utilized in the rational design of next-generation recombinant vectors.

30) **Hodge, J.W.,** Poole, D.J., Aarts, W.M., Gomez Yafal, A., Gritz, L., and Schlom, J. 2003. Modified vaccinia Ankara (MVA) recombinants are as potent as vaccinia recombinants in diversified prime and boost vaccine regimens to elicit therapeutic antitumor responses. Cancer Research. 63:7942-7949.

31) *Kudo-Saito, C., Schlom, J., and **Hodge, J.W.** 2004. Intratumoral vaccination and diversified subcutaneous/intratumoral vaccination with recombinant poxviruses encoding a tumor antigen and multiple costimulatory molecules. Clinical Cancer Research. 10:1090-1099.

Dr. Hodge mentored a visiting fellow who examined the role of introducing TRICOM containing vaccines directly into the tumor environment. This study led to a Phase II clinical trial where PROSTVAC was given intratumorally.

32) *Chakraborty, M., Abrams, S.I., Coleman, C.N., Camphausen, K., Schlom, J., and **Hodge, J.W.** 2004. External beam radiation of tumors alters phenotype of tumor cells to render them susceptible to vaccine mediated T-cell killing. Cancer Research. 64:4328-4337.

Dr. Hodge mentored a research fellow and examined the role of external-beam radiation on tumor phenotype. This study (along with references 28 and 34) showed that vaccination could be combined with standard-of-care treatment for induction of antigenic cascade and increased antitumor activity. This study formed the foundation for a Phase II clinical trial.

33) Slavin-Chiorini, D., Catalfamo, M., Kudo-Saito, C., **Hodge, J.W.**, Schlom, J., and Sabzevari, H. 2004. Amplification of lytic potential of effector/memory CD8+ cells by vector-based enhancement of ICAM-1 in target cells; implications for intratumoral vaccine therapy. Cancer Gene Therapy. 11:665-680.

Peer Reviewed Articles (continued):

34) *Garnett, C.T., Palena, C., Chakraborty, M., Tsang, K.Y., Schlom, J., and **Hodge, J.W.** 2004. Sub-lethal irradiation of human tumor cells modulates phenotype resulting in enhanced killing by CTL. Cancer Research. 64:7985-7994.
Dr. Hodge mentored a postdoctoral fellow (CRTA) and examined the role of external-beam radiation on human tumor phenotype. In this study, it was shown that many types of carcinomas altered their phenotype in response to radiation in a way that rendered them more sensitive to immune mediated attack. This formed the foundation for a Phase II clinical trial.

35) Marshall, J.L., Gulley, J.L., Arlen, P.M., Beetham, P.K., Tsang, K.Y., Slack, R., **Hodge, J.W.**, Doren, S., Hwang, J., Fox, E., Odogwu, L., Park, S., Panicali, D., and Schlom, J. 2005. A phase I study of sequential vaccinations with Fowlpox-CEA (6D)-TRICOM (B7-1/ICAM-1/LFA-3) alone and sequentially with Vaccinia-CEA (6D)-TRICOM, with and without GM-CSF, in patients with CEA-expressing carcinomas. Journal of Clinical Oncology. 23:720-731.

36) *Kudo-Saito, C., Schlom, J., and **Hodge, J.W.** 2005. Induction of an antigen cascade by diversified subcutaneous/intratumoral vaccination is associated with antitumor responses. Clinical Cancer Research. 11:2416-2426.
Dr. Hodge mentored a visiting fellow and designed studies to identify tumor-initiated immune responses as a consequence of vaccination. In some cases, the immune response to the additional antigens (antigen-cascade) was greater than that seen to the vaccinating antigen. This study became the basis for new clinical trial monitoring techniques.

37) Gulley, J.L., Arlen, P.M., Bastian, A., Morin, S., Marte, J., Beetham, P., Tsang, K.Y., **Hodge, J.W.**, Menard, C., Coleman, C.N., Sullivan, F., Steinberg, S.M., Schlom, J., and Dahut, W. 2005. Combining a recombinant cancer vaccine with standard definitive radiotherapy in patients with localized prostate cancer. Clinical Cancer Research. 11:3353-3362.

38) **Hodge, J.W.**, Chakraborty, M., Kudo-Saito, C., Garnett, C.T., and Schlom, J. 2005. Multiple costimulatory modalities enhance CTL avidity. Journal of Immunology. 174:5994-6004.

39) *Kudo-Saito, C., Schlom, J., and **Hodge, J.W.** 2005. The requirement of multimodal therapy (vaccine, local tumor radiation, and reduction of suppressor cells) to eliminate established tumors. Clinical Cancer Research. 11:4533-4544.
Dr. Hodge mentored a visiting fellow and examined a triple combination therapy of vaccination for induction of T-cell responses, with a method of depleting Tregs to potentiate the T-cell response, and external-beam radiation for phenotypic modulation. These data provided the case for multimodal therapy targeting distinct areas of the immune system for greater antitumor activity.

Peer Reviewed Articles (continued):

40) Yang, S., **Hodge, J.W.**, Grosenbach, D.W., and Schlom, J. 2005. Vaccines with enhanced costimulation maintain high avidity memory CTL. Journal of Immunology. 175:3715-3723.

41) Palena, C., Foon, K.A., Panicali, D., Gomez Yafal, A., Chinsangaram, C., **Hodge, J.W.**, Schlom, J., and Tsang, K.Y. 2005. A potential approach to immunotherapy of chronic lymphocytic leukemia (CLL): enhanced immunogenicity of CLL cells via infection with vectors encoding for multiple costimulatory molecules. Blood. 106:3515-3523.

42) *Gelbard, A., Garnett, C.T., Abrams, S.I., Patel, V., Gutkind, S., Palena, C., Tsang, K.Y., Schlom, J., and **Hodge, J.W.** 2006. Combination chemotherapy and radiation of human squamous cell carcinoma of the head and neck augments CTL-mediated lysis. Clinical Cancer Research. 12:1897-1905.
Dr. Hodge mentored a Howard Hughes Medical Fellow in the combination therapy of head and neck tumors with standard-of care radiation (external-beam) and chemotherapy (5-FU) and increased T-cell killing. This study was an intra-institute collaboration with the National Institute of Dental and Craniofacial Research.

43) Reits, E., **Hodge, J.W.**, Herberts, C., Chakraborty, M., Wansley, E., Camphausen, K., Schlom, J., Luiten, R.M., Ru, A., Groothuis, T.A., Griekspoor, A., Mesman, E., Verreck, F., Spits, H., Veelen, P., and Neefjes, J. 2006. Ionising radiation modulates the peptide repertoire of MHC class I molecules. Journal of Experimental Medicine. 203:1259-1271.

44) Kudo-Saito, C., **Hodge, J.W.,** Kwak, H., Schlom, J., and Kaufman, H.L. 2006. 4-1BB ligand enhances tumor-specific immunity of poxvirus vaccines. Vaccine. 24: 4975-4986.

45) *Kudo-Saito, C., Wansley, E.K., Gruys, M.E., Wiltrout, R., Schlom, J., and **Hodge, J.W.** 2007. Combination therapy of an orthotopic renal cell carcinoma model employing intratumoral vector-mediated costimulation and systemic IL-2. Clinical Cancer Research. 15:1936-1946.
Dr. Hodge mentored a visiting fellow and examined the use of vectors encoding multiple costimulatory molecules (TRICOM) in tumors without well-defined tumor antigens. By introducing TRICOM intratumorally in a renal cell carcinoma model, it was demonstrated that productive immune responses resulting in antitumor activity could be induced without a-priori knowledge of the tumor antigen.

Peer Reviewed Articles (continued):

46) *Chakraborty, M., Schlom, J., and **Hodge, J.W**, 2007. The combined activation of positive costimulatory signals with modulation of a negative costimulatory signal for the enhancement of vaccine-mediated T-cell responses. Cancer Immunology and Immunotherapy. 56:1471-1484.
Dr. Hodge mentored a research fellow and examined the role of CTLA-4 blockade in combination with TRICOM containing vaccines. The optimal sequencing of the vaccine components was determined as well as the mechanism for significant improvement in antitumor activity; a >10-fold increase in T-cell avidity. These data were foundational for a Phase II trial in prostate cancer.

47) *Kudo-Saito, C., Wansley, Garnett, C.T., Schlom, J., and **Hodge, J.W.** 2007. Intratumoral delivery of vector mediated IL-2 in combination with vaccine results in enhanced T-cell avidity and anti-tumor activity. Cancer Immunology and Immunotherapy. May 15, 2007.
Dr. Hodge mentored a visiting fellow in the rational design of experiments examining the role of IL-2 and IL-15 on both the quantity and quality (avidity) of T-cell responses generated with vaccine.

48) *Bernstein, M.B., Chakraborty, M., Wansley, E.K., Guo, Z., Franzusof, A., Mostbock, S., Sabzevari, H., Schlom, J., and **Hodge, J.W.** 2008. Recombinant Saccharomyces cerevisiae (yeast-CEA) as a potent activator of murine dendritic cells. Vaccine. 26:509-521.
Dr. Hodge mentored a medical student to examine a new vaccination platform: heat-killed recombinant baker's yeast containing a tumor antigen. Recombinant yeast was shown to activate dendritic cells and strongly stimulate T-cells in vitro. This vector platform, being heat-killed, could be used safely during ablative chemotherapy. These data (and reference 53) led to a Phase I clinical trial with Yeast-CEA and is in the planning stages for a Phase II clinical trial.

49) *Chakraborty, M., Gelbard, A., Carrasquillo, J., Yu, S., Mamede, M., Paik, C., Camphausen, K., Schlom, J., and **Hodge, J.W.** 2008. Use of radiolabeled monoclonal antibody to enhance vaccine-mediated antitumor effects. Cancer Immunology and Biology. 57(8):1173-1183.
Dr. Hodge mentored a research fellow and examined the role of radiolabeled monoclonal antibody on tumor phenotype. This study showed that an I-125 labeled mAb could modulate tumor phenotype and make tumors more sensitive to immune mediated killing. Moreover, it was shown that antigen-specific T-cells were more resistant to radiation than naïve T-cells.

Peer Reviewed Articles (continued):

50) *Garnett, C., Schlom, J., and **Hodge, J.W.** 2008. Combination of docetaxel and recombinant vaccine enhances T-cell responses and antitumor activity: effects of docetaxel on immune enhancement. Clinical Cancer Research. 14:3536-3544.
Dr. Hodge mentored a postdoctoral fellow (CRTA) and designed studies examining the role of standard-of-care chemotherapy on tumor cell phenotype and sensitivity to immune mediated attack. These studies led to a Phase II clinical trial in prostate cancer at the clinical center as well as an ongoing multicenter Phase II trial in breast cancer. Initial data suggests that this combination therapy provides clinical benefit.

51) *Wansley, E., Chakraborty, M., Carrasquillo, J., Yu, S., Paik, C., Camphausen, K., Becker, M., Goeckeler, W., Schlom, J., and **Hodge, J.W**. 2008. Use of Samarium-153-EDTMP to modulate phenotype of tumor cells and enhance T-cell-mediated killing. Clinical Cancer Research. 14:4316-4325.
Dr. Hodge mentored a postdoctoral fellow (CRTA) and examined the role of systemic radionuclide on tumor phenotype. This study showed that a radiopharmaceutical approved for palliation of bone metastasis pain, when combined with a vaccine, would have significant antitumor activity. This study was used to open a multicenter Phase II clinical trial using PROSTVAC and Quadramet (Sm-153 chelate) in men with metastatic prostate cancer. Early indications are that this combination of radiation and vaccine has clinical benefit.

52) Gulley, J., Arlen, P.A., Tsang, K.Y., Yokokawa, J., Palena, C., Poole, D.J., **Hodge, J.W**., Remondo, C., Cereda, V., Jones, J., Pazdur, M., Steinberg, S., Kotz, H., Dahut, W., and Schlom, J. 2008. A pilot study to evaluate the safety and clinical outcomes of vaccination with recombinant CEA-MUC-1-TRICOM (PANVAC) poxviral-based vaccines in patients with metastatic carcinoma. Clinical Cancer Research. 15:3060-3069.

53) *Wansley, E., Chakraborty, M., Hance, K., Bernstein, M., Boehm, A.L., Quick, D., Franzusof, A., Greiner, J., Schlom, J., and **Hodge, J.W**. 2008. Vaccination with a recombinant Saccharomyces cerevisiae vaccine expressing a tumor antigen breaks immune tolerance and elicits therapeutic antitumor responses. Clinical Cancer Research. 14:4316-4325.
Dr. Hodge mentored a postdoctoral fellow (CRTA) and examined the antitumor effects of heat-killed recombinant baker's yeast containing a tumor antigen. Recombinant yeast was shown to induce potent T-cell responses against a tumor antigen, and have antitumor activity resulting in increased survival. These data (along with reference 48) led to a Phase I clinical trial with Yeast-CEA and is in the planning stages for a Phase II clinical trial.

Peer Reviewed Articles (continued):

54) **Hodge, J.W**., Higgins, J.P., and Schlom, J. 2009. Harnessing the unique local immunostimulatory properties of modified vaccine Ankara (MVA) virus to generate superior tumor-specific immune responses and antitumor activity in a diversified prime and boost vaccine regimen. Vaccine. 27(33):4475-4482.

55) *Boehm, A.L., Higgins, J.P., Franzusoff, A., Schlom, J., and **Hodge, J.W.** 2009. Concurrent vaccination with two distinct vaccine platforms targeting the same antigen generates phenotypically and functionally distinct T-cell populations. Cancer Immunology and Immunotherapy. 59(3): 397-408.
Dr. Hodge mentored a postdoctoral fellow (CRTA) on the differential activation of non-overlapping antigen-specific T-cell populations from two cancer vaccine platforms; recombinant vaccinia and recombinant-yeast. These data were the first to indicate that multiple vaccines targeting the same could be used simultaneously and form the foundation for multiple vaccine combinations in clinical trials.

56) Gulley, J.L., Arlen, P.M., Madan, R.A., Tsang, K.Y., Pazdur, M.P., Skarupa, L., Jones, J.L., Poole, D.J., Higgins, J.P., **Hodge, J.W.**, Cereda, V., Vergati, M., Steinberg, S.M., Halabi, S., Jones, E., Chen, C., Parnes, H., Wright, J.J., Dahut, W.L., and Schlom J. 2010. Immunologic and prognostic factors associated with overall survival employing a poxviral-based PSA vaccine in metastatic castrate-resistant prostate cancer. Cancer Immunology and Immunotherapy 59(5): 116-122.

57) *Farsaci, B., Sabzevari, H., Di Bari, M.G., Takai, S., Schlom, J., and **Hodge, J.W.** 2010. Effect of a small molecule BCL-2 inhibitor on immune function and use with a recombinant vaccine. International Journal of Cancer. 127(7): 1603-1613.
Dr. Hodge mentored a visiting fellow to determine that memory T-cells were resistant to the effects of a small-molecule inhibitor of BCL-2. These data were informative for the planning of a Phase II clinical trial combining the BCL-2 inhibitor with PROSTVAC in patients with prostate carcinoma.

58) Gameiro, S., Caballero, J.A., Higgins, J.P., Apelian, D., and **Hodge, J.W.** 2011. Exploitation of differential homeostatic proliferation of T-cell subsets following chemotherapy to enhance the efficacy of vaccine mediated antitumor responses. Cancer Immunology and Immunotherapy. *In-Press.*

59) Farsaci, B., Higgins, J.P., and **Hodge, J.W.** 2011. Consequence of dose scheduling of sunitinib on host immune response elements and vaccine combination therapy International Journal of Cancer. *In-Press*

Review Articles:

1) **Hodge, J.W**., Wust, C.J., Ichiki, A.T., and Lozzio, C.B. 1991. Antibodies to specific cell surface antigens of a human leukemia cell line, K-562, transduce negative growth signals. Negative Regulators of Hematopoiesis, Studies on Their Nature, Action, and Potential Role in Cancer Therapy. Annals of the New York Academy of Science. 628:165-168.

2) **Hodge, J.W**. 1996. Carcinoembryonic antigen (CEA) as a target for cancer vaccines. Cancer Immunology and Immunotherapy. 43:127-134.

3) Schlom, J., Tsang, K-Y, Kantor, J.A., Abrams, S.I., Zaremba, S., Greiner, J., and **Hodge, J.W**. 1998. Cancer vaccine development. Expert Opinion on Investigational Drugs. 7:1-1439-1452.11)

4) Schlom, J., Tsang , K-Y, Kantor, J.A., Abrams, S.I., Zaremba, S., Greiner, J., and **Hodge J.W**. 1999. Strategies in the development of recombinant vaccines for colon cancer. Seminars in Oncology. 6:672-682.

5) Schlom, J., and **Hodge, J.W.** 1999. The diversity of T-cell costimulation in the induction of anti-tumor immunity. Immunological Reviews. 170:73-84.

6) **Hodge, J.W.,** Tsang, K.Y., Poole, D.J., and Schlom, J. 2003. Vaccine strategies for the therapy of ovarian cancer. Gynecologic Oncology. 88:S97-S104.

7) Schlom, J., Sabzevari, H., Grosenbach, D.W., and **Hodge, J.W.** 2003. A triad of costimulatory molecules synergize to amplify T-cell activation in both vector-based and vector-infected dendritic cell vaccines. Artificial Cells, Blood Substitutes, and Biotechnology. 31:193-228.

8) **Hodge, J.W.**, Greiner, J.W., Tsang, K.Y., Sabzevari, H., Saito-Kudo, C., Grosenbach, D.W., Gulley, J.L., Arlen, P.M., Marshall, J.L., Panicali, D., and Schlom, J. 2006. Costimulatory molecules as adjuvants for immunotherapy. Frontiers in Bioscience. 11:788-803.

9) Garnett, C.T., Greiner, J.W., Tsang, K.Y., Saito-Kudo, C., Grosenbach, D.W., Gulley, J.L., Arlen, P.M., Marshall, J.L., Panicali, D., and Schlom, J., and **Hodge, J.W.** 2006. TRICOM as a novel immunotherapy. Current Pharmaceutical Design. 12:351-361.

10) Palena, C., Schlom, J., Abrams, S.I., and **Hodge, J.W.** 2006. Cancer vaccines: Preclinical studies and novel strategies. In: Advances in Cancer Research. 95:115-145.

11) Sharp, H.J., Wansley, E.K., Garnett, C.T., Chakraborty, M., Camphausen, K., Schlom, J., and **Hodge, J.W**. 2007. Synergistic antitumor activity of immune strategies combined with radiation. Frontiers in Bioscience. 12:4900-4910.

Review Articles (continued):

12) Arlen, P.A., Madan, R.A., **Hodge, J.W**., Schlom, J., and Gulley, J.L. 2007. Combining vaccines with conventional therapies for cancer**.** Update Cancer Therapy. 1:33-39.

13) Arlen, P.A., Gulley, J.L., Madan, R.A., **Hodge, J.W**., and Schlom, J. 2007. Preclinical and clinical studies of recombinant poxvirus vaccines for carcinoma therapy. Critical Reviews in Immunology. 27:4451-462.

14) **Hodge, J.W.,** Guha, C., Neefjes, J., and Gulley, J.L. 2008. Synergizing radiation therapy and immunotherapy for curing incurable cancers: opportunities and challenges. Oncology. 9:1064-1070.

15) Gameiro, S.R., and **Hodge, J.W.** 2008. Unlocking combination therapies for cancer. Combination Therapies: opportunities and challenges. Bioforum Europe. 11:20-21.

16) Ferrara, T.A., **Hodge, J.W.**, and Gulley, J.L. 2009. Combining radiation and immunotherapy for synergistic antitumor therapy. Current Opinion in Molecular Therapeutics. 11:37-42.

17) Madan, R.A., Arlen, P.M., Mohebtash, M., **Hodge, J.W.,** and Gulley, J.L. 2009. Prostvac-VF: a vector-based vaccine targeting PSA in prostate cancer. Expert Opinion on Investigational Drugs. 18(7):1001-1011.

18) Higgins, J.P., Bernstein, M.B., and **Hodge, J.W.** 2009. Enhancing immune responses to tumor-associated-antigens. Cancer Biology and Therapy. 8(15):1-10.

19) Kamrava, M., Bernstein, M.B., Camphausen, K., and **Hodge, J.W.** 2009. Combining radiation, immunotherapy, and antiangiogenesis agents in the management of cancer: the Three Musketeers or just another quixotic combination? Molecular Biosystems. 5(11): 1262-1270.

20) Rotow, J., Gameiro, S.R., Madan, R.A., Gulley, J.L., Schlom, J., and **Hodge, J.W.** 2010. Vaccines as monotherapy and in combination for prostate cancer. Clinical and Translational Science. 3(3):116-122.

21) Ardiani, A., Higgins, J.P., and **Hodge, J.W.** 2010. Vaccines based on whole recombinant Saccharomyces cerevisiae cells. FEMS Yeast Research. 10(8):1060-1069.

Book Chapters:

1) **Hodge, J.W**., and Schlom, J. 1998. Carcinoembryonic antigen (CEA) as a model for immunotherapy using recombinant vaccines. In: Cell Adhesion and Communication Mediated by the CEA Family: Basic and Clinical Perspectives. C.P. Stanners, Ed. Harwood Academic Publishers, Amsterdam. 223-236.

2) **Hodge, J.W**., and Schlom, J. 2000. Costimulatory molecules in vaccine design. In: Therapeutic Vaccination Strategies, Ernst Schering Research Foundation Workshop Proceedings. 30:23-52.

3) Schlom, J., Tsang, K.Y., **Hodge, J.W.**, and Greiner, J.W. 2001. Carcinoembryonic antigen as a vaccine target. In: Cancer Immunology: Medicine in Immunology Series. R.C. Rees and A. Robins, Eds. 73-100.

4) Schlom, J., Palena, C., Greiner, J.W., Tsang, K.Y., Grosenbach, D.W., Sabzevari, H., Gulley, J.L., Arlen, P.M., Kass, E., and **Hodge, J.W.** 2004. Combinatorial vaccine strategies and the use of molecular arrays to characterize T-cell activation. In: Development of Therapeutic Cancer Vaccines. Developmental Biology Basel, Karger. F. Brown and J. Petricciani, Eds. 19-26.

5) **Hodge, J.W.,** Abrams, S.I., and Schlom, J. 2006. Vaccines and immunostimulants. In: Cancer Medicine, edition 7. *D.* Kufe, editor, BC Decker.

6) Orentas, R., **Hodge, J.W.,** and Johnson, B.D. eds. 2008. Cancer Vaccines and Tumor Immunity. Wiley and Sons, New Jersey.

7) Gulley, J.L., Arlen, P.M., **Hodge, J.W.,** and Schlom, J. 2009. Vaccines and immunostimulants. In: Cancer Medicine, edition 8. D. Kufe, editor, BC Decker.

8) Boehm, A.L., and **Hodge, J.W.** 2011. The B7-1 Costimulatory molecule. Encyclopedia of Cancer Targets. Weiner, Gelmann, Kaufman, and Wellstein, eds. *In-Press.*

9) Farsaci, B., Kwilas, A., and **Hodge, J.W.** 2011. Design, Development and translation of poxvirus-based vaccines for cancer. In: Cancer Vaccines, Second Edition. Editors: A. Bot, F. Marincola, and M. Obrocea. *In-Press.*

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References:

Available on Request